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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,079	04/06/2004	Tatsuya Shindo	501558.20016	7098

26418 7590 03/22/2006

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EXAMINER	
FIDLER, SHELBY LEE	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/820,079	SHINDO, TATSUYA	
	Examiner	Art Unit	
	Shelby Fidler	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 April 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/6/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10 and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Gotoh et al. (US 6527361 B1).

Gotoh et al. teaches the following:

***regarding claim 1,** an ink jet printing apparatus comprising:

an ink jet head (*elements 1, Fig. 7*) including an ink ejecting portion (*element 11, Fig. 8*) and an ejection-energy generating portion operable to eject droplets of an ink from the ink ejecting portion (*col. 6, lines 34-36 with col. 1, lines 53-57*);

a purging device operable to discharge the ink from the ink ejecting portion (*suction cap 202, Fig. 2*), without an operation of the ejection-energy generating portion, for thereby performing a purging operation to improve an ink ejecting state of the ink jet head (*col. 8, lines 40-47*); and

a controller operable to control the purging device for performing the purging operation, and to control the ejection-energy generating portion for performing a flushing

operation to discharge the ink from the ink ejecting portion to improve the ink ejecting state of the ink jet head (*col. 6, lines 46-48, electric circuit controls the printer*),

and wherein the controller includes a flushing control portion (*recovery control means, col. 4, lines 15-17*) operable to control the ejection-energy generating portion such that ink ejecting actions in the flushing operation are performed in a plurality of intermittent cycles (*discharge processes*), with a non-ejection pause (*interruption periods*) being inserted between two successive ones of the intermittent cycles (*col. 14, lines 44-46*), the non-ejection pause having a time duration longer than a period of each of the ink ejecting actions (*Fig. 22C shows an interruption period longer than a discharge process*)

***regarding claim 2**, the time duration of the non-ejection pause is long enough to permit air bubbles in the ink in the ink jet head to be substantially dissolved in the ink (*Fig. 22C shows a duration of about 1 second*)

***regarding claim 3**, the flushing control portion controls the ejection-energy generating portion such that the ink ejecting actions in each of the plurality of intermittent cycles are effected at a frequency of 4-10 kHz (*6 kHz, col. 13, lines 39-41*)

***regarding claims 4 and 5**, the time duration of the non-ejection pause is about one second (*Fig. 22C shows a duration of about 1 second; col. 15, lines 1-6 show that the duration changes depending on the types of inks*)

***regarding claim 6**, the flushing control portion activates the ejection-energy generating portion to perform the flushing operation (*step S16*) after termination of the purging operation (*step S15*) by the purging device (*flowchart of Figure 14*)

***regarding claim 7**, each of the plurality of intermittent cycles includes the ink ejecting actions performed for a length of time during which air bubbles in the ink in the ink jet head do

not grow to sizes so large as to disturb a normal ink ejecting operation of the ink jet head (*Fig. 22C shows a duration of about 1 second*)

***regarding claim 8**, the flushing control portion includes a timer operable to measure the time duration of the non-ejection pause (*col. 14, lines 44-46 shows that there is a predetermined pause. Since the pause was predetermined, it is inherent that Gotoh et al.'s invention incorporated a timer to ensure the duration of the predetermined pause*)

***regarding claim 9**, the flushing control portion is operable to control the ejection-energy generating portion such that each of the plurality of intermittent cycles includes a predetermined number of the ink ejecting actions (*col. 12, lines 61-64 with col. 13, lines 39-41 shows that the time of a cycle, and thus number of ejections, is predetermined*)

***regarding claim 10**, the flushing control portion is operable to control the ejection-energy generating portion such that the ink ejecting actions in each of the plurality of intermittent cycles are performed for a predetermined time duration (*col. 12, lines 61-64*)

***regarding claim 12**, an ink jet printing apparatus comprising:

a head unit having a plurality of ink jet heads (*elements 1, Fig. 7*) each including an ink ejecting portion (*element 11, Fig. 8*) and an ejection-energy generating portion operable to eject droplets of an ink from the ink ejecting portion (*col. 6, lines 34-36 with col. 1, lines 53-57*);

a purging device operable to discharge the ink from the ink ejecting portions of two adjacent ones of the plurality of ink jet heads (*suction cap 202, Fig. 2 with col. 8, lines 21-23*), without operations of the ejection-energy generating portions of the two adjacent ink jet heads, for thereby performing a purging operation to improve ink ejecting states of the two adjacent ink jet heads (*col. 8, lines 40-47*); and

a controller operable to control the purging device for performing the purging operation, and to control the ejection-energy generating portion for performing a flushing operation to discharge the ink from the ink ejecting portion of each of the two adjacent ink jet heads to improve the ink ejecting states of the two adjacent ink jet heads (*col. 6, lines 46-48, electric circuit controls the printer*),

and wherein the controller includes a flushing control portion (*recovery control means, col. 4, lines 15-17*) operable to control the ejection-energy generating portion of each of the two adjacent ink jet heads such that ink ejecting actions in the flushing operation are performed in a plurality of intermittent cycles (*discharge processes*), with a non-ejection pause (*interruption periods*) being inserted between two successive ones of the intermittent cycles (*col. 14, lines 44-46*), the non-ejection pause having a time duration longer than a period of each of the ink ejecting actions (*Fig. 22C shows an interruption period longer than a discharge process*)

***regarding claim 13**, the purging device includes a suction cap (*element 202, Fig. 2*) arranged for a pressure-tight contact with the ink ejecting portions of the two adjacent ink jet heads (*col. 8, lines 42-47*)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (US 6527361 B1) in view of Matsumoto et al. (US 6969136 B1).

Gotoh et al. teaches the following:

***regarding claim 11**, an ink cartridge for supplying the ink jet head with the ink (*col. 6, lines 31-35*)

Gotoh et al. does not expressly teach the following:

***regarding claim 11**, the controller includes a time measuring portion operable to measure a time which has passed after installation of the ink cartridge on the ink jet head, the flushing control portion is operable after the time measured by the time measuring portion has reached a predetermined threshold

Matsumoto et al. teaches the following:

***regarding claim 11**, the controller includes a time measuring portion operable to measure a time which has passed after installation of the ink cartridge on the ink jet head (*col. 4, lines 4-9 with col. 5, lines 15-17*), the flushing control portion is operable after the time measured by the time measuring portion has reached a predetermined threshold (*col. 5, lines 12-17*)

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Gotoh et al.'s invention to flush after a predetermined time has passed after cartridge installation. The motivation for doing so, as taught by Matsumoto et al., is to prevent nozzle openings from being clogged (*col. 5, lines 12-15*)

Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on MWF 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLF

K. FEGGINS
PRIMARY EXAMINER